

**REMARKS**

Reconsideration of the rejections stated in the Office action mailed January 11, 2006 is requested in view of the following comments.

A. Buntin et al., U. S. Patent No. 3,849,241

All the rejections stated in the Office action are based on Buntin et al., U. S. Patent No. 3,849,241 (hereafter “Buntin,” as spelled in a certificate of correction attached to the patent), and therefore it is important at the outset to review and consider the teachings of Buntin.

Buntin is an early teaching about the manufacture of melt-blown fibers, and is particularly directed to treatment of polymers before the actual melt-blowing operation. Buntin teaches that the melt-blowing process can be improved (e.g., by avoiding formation of “shot” in the collected microfiber web) by subjecting the melt-blowing polymer to a controlled degradation that reduces the polymer’s viscosity and increases its flow rate; see Buntin, column 2, lines 28-59.

In one paragraph in the patent (at column 4, lines 31-49) Buntin lists polymers that are said to be subject to the teachings of the patent, and this paragraph includes mention of poly(ethyleneterephthalate) (PET), which is the subject of applicants’ invention.

Buntin has at least three fundamental deficiencies as a prior-art reference against applicants’ invention:

1. Buntin is really directed only to polyolefins, particularly polypropylene

a. Buntin’s only detailed teachings are about polypropylene and polyolefins

Although Buntin has a few sentences or paragraphs that describe his invention in general terms, it is clear that the patent is really about polyolefins, and especially polypropylene; see the following:

- a. Polypropylene is the only polymer discussed in Buntin in other than a perfunctory way.
- b. References to polyolefins, particularly polypropylene, are replete throughout Buntin:

<u>Column</u>	<u>Line</u>
2	18
7	16-17
8	3
9	11
10	53
11	19
12	56
13	53
14	38, 49
15	Table V, line 1
16	35-41 (polyolefins other than polypropylene)
17	28
18	56

c. At column 10, lines 1-16, Buntin describes a basis for calculation of polymer viscosity in the die orifices by reference to handbook information specifically about polyolefins. Insofar as can be seen, all the specific parameters such as polymer temperature, nozzle temperature, air flow pressures and rates, polymer viscosity and flow rate, etc. in Buntin are directed to polypropylene and related polyolefins.

d. All the examples except Examples 20 and 21 are directed to polypropylene, and Examples 20 and 21 are intended only to “illustrate another C<sub>3</sub> to C<sub>8</sub> polyolefin other than polypropylene” (col. 17, ll. 1-4), namely poly-1-4-methylpentene-1.

e. Buntin’s disclosure is narrowed even further in column 7, lines 32-37, where it is stated, “Particularly in the instances of polyolefins produced in a Ziegler catalyzed process,” thermal degradation is necessary for use in the invention. In other words, Buntin is not really directed to the whole class of polyolefins, but only to the particular class of polyolefins produced in a Ziegler catalyzed process, which makes Buntin even more remote from the PET of applicants’ invention.

b. For Buntin to extend to polymers other than polyolefins would require detailed and specific teachings about the other polymers

A teaching of Buntin's invention – degradation of a polymer before it is melt-blown, and the conditions for obtaining such degradation -- necessarily requires teachings that are specific to the polymer being treated. Polymers differ from one another as to molecular composition and structure and as to properties such as melting point and melt-viscosity (with and without thermal degradation). Such differences affect the possibility of thermal degradation to a lower melt viscosity as Buntin desires, as well as the conditions needed for such degradation. Different conditions will be needed to thermally degrade different polymers, assuming it is even possible to degrade the polymers to a lower melt-viscosity. The specific composition and polymeric structure of a polymer will determine its susceptibility to degradation and the conditions that must be applied to cause degradation.

For Buntin to be a teaching about polymers other than polypropylene it would be necessary for Buntin to describe conditions specifically useful for such polymers. There are no such teachings in Buntin. Although Buntin may not explicitly characterize his description of temperature ranges or other conditions as being specific to polyolefins, persons skilled in the art certainly understand that the temperatures and conditions are in fact specific to polyolefins, especially polypropylene. Buntin never describes conditions appropriate for use with a particular polymer or class of polymers other than polyolefins and polypropylene.

2. Buntin contains no enabling teaching about PET, which is the subject of applicants' invention.

The one-word mention in Buntin of "poly(ethyleneterephthalate)" (col. 4, l. 40) by itself is insufficient to provide any real teaching about use of poly(ethyleneterephthalate) (PET) in Buntin's invention. As discussed in the previous section, persons skilled in the art would understand that temperatures and conditions applicable to polypropylene would not be applicable to PET. PET has a molecular composition and structure and a melt-temperature, melt-viscosity, etc. completely different from that of polypropylene. The well-known differences between polymers dictates differences in the conditions effective to thermally degrade the polymers. An adequate teaching about thermally degrading applicants' PET to a lower melt-viscosity, assuming that is even possible, would require specific teachings for PET.

There is no demonstration in Buntin that degradation is possible with PET, nor is there any teaching of the conditions that would be used for PET. A skilled reader would understand that the teachings in Buntin about polypropylene have no application to polymers like PET of a completely different composition from polypropylene.

3. Buntin teaches conditions to accomplish degradation, not melt-blowing without degradation

Buntin's teachings are directed to thermal degradation of the polymers being melt-blown. Buntin heats the polymers to elevated temperatures and exposes them to those elevated temperatures for times sufficient to cause degradation of the polymers; see Buntin, column 2, lines 28-59 and column 3, lines 34-67, particularly lines 40-44. The temperatures chosen by Buntin are thus unusually elevated: they are not temperatures normally used for melt-blowing polypropylene, but instead are elevated temperatures that will cause degradation of polypropylene.

Applicants' invention is about melt-blowing PET, and there is no suggestion that degradation is being performed on the PET. Buntin's teachings about degradation of polymers have no relevance to applicants' invention, which has nothing to do with degradation, but is directed to a completely different problem and seeks to accomplish a completely different purpose.

The fact that the unusually high temperatures used by Buntin to cause degradation of polypropylene partially overlap the unusually low temperatures used by applicants to melt-blow PET is perhaps an interesting coincidence, but it is not a relevant consideration in judging whether applicants' claims are taught by the prior art. Persons skilled in the art would not turn to Buntin's teachings about degradation of polypropylene in developing a technique for producing oriented PET melt-blown fibers.

B. A more pertinent prior-art teaching about polypropylene and PET

The above points can be illustrated by reference to another patent from the melt-blowing art, namely Meyer et al., U. S. Patent No. 5,141,699, copy attached. Meyer is directed to a technique for orienting melt-blown fibers, but in the course of the patent it teaches conditions conventionally used for melt-blowing both polypropylene and PET. Example 1 of the patent is

directed to polypropylene and teaches melt-blowing of the polypropylene at a temperature of 200°C; see column 8, lines 47-56, as well as column 9, lines 34-38 (the latter is directed to a comparative example, i.e., without use of an orienting chamber, and therefore is most similar to conventional practice in melt-blowing polypropylene).

Meyer Example 3 is directed to melt-blowing PET and teaches melt-blowing of the PET at temperatures of 315°C (in the case of use of an orienting chamber) or 335°C (in the case of the comparative example, which is presumably closest to conventional practice).

It is clear from these teachings that polypropylene and PET are fundamentally different polymers from one another, and that conditions useful for one are not useful for the other. The 200°C temperature used in Meyer for melt-blowing polypropylene is fundamentally different from the 335°C temperature used for melt-blowing PET. The well-understood reason for the different melt-blowing temperatures is that there is a basic difference in polymeric nature and properties between polypropylene and PET. Conditions for melt-blowing, which is the subject of applicants' invention, are different for polypropylene than for PET, and accordingly Buntin's teachings about polypropylene are not relevant to applicants' PET.

In addition to showing a difference between polypropylene and PET, Meyer is evidence why applicants' invention is distinctive and nonobvious over prior practice. Meyer reflects the conventional prior-art practice as to melt-blowing PET. Meyer's Example 3 is specific to PET and is the best evidence of record as to prior-art understanding about the temperatures to be used in melt-blowing PET. The melt temperatures of either 315°C or 335°C used by Meyer, and the air temperature of 315°C are well in excess of the 295°C and 260°C called for, respectively, in applicants' claims. Meyer illustrates the novelty of the conditions used by applicants in a process of their invention.

#### C. Applicants new claimed method achieves unique results

Applicants' invention is directed to the problem of providing strong, oriented, dimensionally stable melt-blown PET fibers (see applicants' specification, page 1, lines 9-32). The challenge of obtaining oriented melt-blown fibers, including oriented melt-blown PET fibers, is illustrated in prior-art patents. The above-cited Meyer patent is one illustration. Meyer teaches obtaining melt-blown PET fibers in an oriented form by passing extruded filaments through an orienting chamber, which requires specialized apparatus and added process steps.

Thompson et al., U. S. Patent No. 5,958,322, cited as a reference on page 5, first paragraph of the Office action, is another prior patent that recognizes and discusses in some detail the inability of the prior art to prepare oriented melt-blown PET fibers. Thompson deals with the problem by orienting collected webs of PET fibers held in tentering apparatus, and does not teach any method for preparing oriented PET fibers directly from the melt-blowing die.

Applicants have found a method for preparing melt-blown PET fibers in an oriented form directly in the melt-blowing process. This is an achievement the prior art wanted but could not achieve. Instead of the extra and costly steps used by the prior art to obtain a form of oriented melt-blown PET fiber, applicants obtain such fibers directly in the melt-blowing process. Insofar as known, no prior art obtains such a result or teaches how to obtain such a result. Applicants have made a significant and important advance in the art.

#### D. Specific rejections

With the above background, the specific rejections of the Office action may be considered.

#### **§ 102 Rejections**

Claims 1-3 stand rejected under 35 USC § 102(b) as being anticipated by Buntin. The above discussion shows that Buntin has no teaching about PET that is enabling and relevant to applicants' invention. For example, the 288°C referred to on page 3 of the Office action, second paragraph, is the lower limit of a range for degradation of polypropylene and has no relevance to applicants' method for melt-blowing PET. Persons skilled in the art reading Buntin would understand that the temperature ranges stated in Buntin do not apply to PET. Even assuming it were possible to thermally degrade PET, persons skilled in the art would understand that the temperatures in Buntin are not the temperatures to use for such a purpose.

#### **§ 103 Rejections**

##### a. Rejections of claims 4-10 on pages 4-7 of the Office action

All of these rejections depend on Buntin, and on the view that Buntin teaches the conditions recited in applicants' claims for melt-blowing PET. These rejections are all traversed because, as discussed above, Buntin has no enabling teaching pertinent to PET, nor any teaching about melt-blowing PET, which is the subject of applicants' claims.

##### b. Buntin in view of "admission"

Beginning on page 7, last full paragraph, the Office action states rejections based on an alleged admission made on behalf of applicants in a response for Application No. 09/716,790 received by the PTO on December 16, 2002. Whether or not the identified statements made on behalf of applicants qualify as an admission (the words “undoubtedly could be” do not specifically identify an item of prior art), the essential fact is that Buntin’s teachings do not combine with the alleged admission (hereafter simply called “Admission”) to teach or suggest applicants’ invention.

The Office action (at page 8, third full paragraph) contends it would have been obvious “to make Applicant’s admittedly known fiber into a web by using Butin’s controllable variables within the PET web-making process in order to have a PET web process that successfully makes the known fibers into a web ... .” Applicants understand this sentence as a contention that it would be obvious for Buntin to newly make fibers that correspond to those of the Admission, i.e., to make fibers by Buntin’s procedures that would have the properties of the fibers of the Admission. Based on this contention the Office action states a rejection of claims 1-3 as unpatentable over Buntin in view of the Admission, and rejects remaining claims as unpatentable over Buntin, the Admission and other items of prior art.

A key part of all the stated rejections is the position represented by the statement on page 9, line 2 of the Office action that “Buntin teaches the same process as applicant.” This position is not correct, as discussed above. Buntin teaches a process for degrading polyolefins, especially polypropylene, not applicants’ process for melt-blowing oriented PET fibers. The temperature ranges taught by Buntin are for degrading polypropylene, and persons skilled in the art would not associate them with PET, and would not regard them as a teaching of melt-blowing PET.

In view of the above, it is submitted that the application is in condition for allowance. Reconsideration of the application is requested.

Respectfully submitted,

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